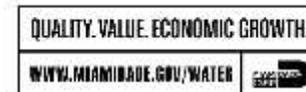


Alternative Water Supply Sources Reuse and Resilience Miami-Dade Water and Sewer Department



**South Florida Ecosystem Restoration Task Force
Public Engagement Workshop
November 17, 2020**

Virginia Walsh, Ph.D., P.G.
Miami Dade Water and Sewer Department





AGENDA



- Overview Miami-Dade Water and Sewer Department (WASD) system
- Summary of South Dade Water Reclamation Project
- Summary County-FPL Reuse Agreement
- Current Available Reuse for BBSEER

MIAMI-DADE UTILITY OVERVIEW

Water Treatment System

Supplying on average 320 million gallons per day (MGD)

Regional Treatment Plants

Wastewater System

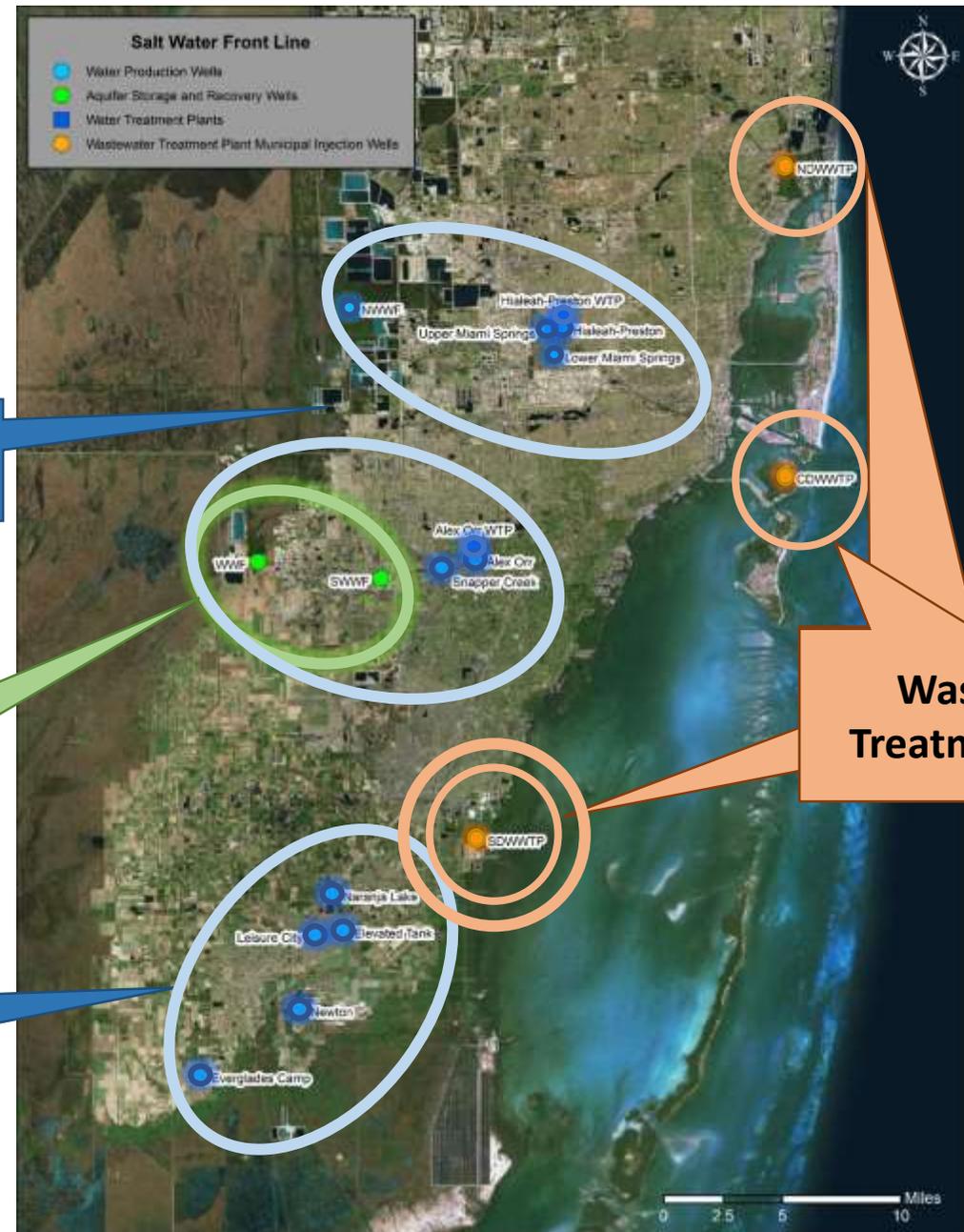
Collecting, treating, and disposing of ~290 MGD

Two ASR Wellfields

ASR Wellfield

Will provide up to 25 MGD of additional capacity

South Dade System



WASTEWATER REUSE

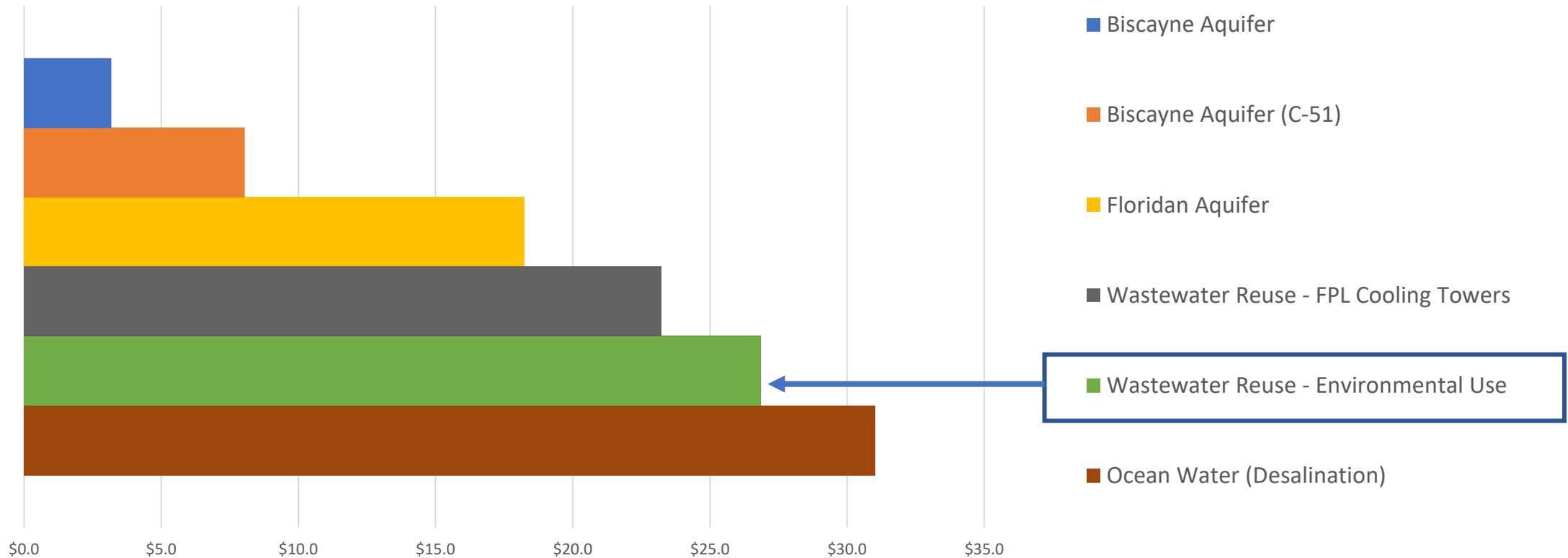
Challenges in Miami-Dade County

- *Land application opportunities (i.e. irrigation)*
 - Economic infeasibility due to the urbanized community (as indicated by FDEP in 2015 Report to Florida Legislature).
 - Limited irrigation
- *Aquifer recharge*
 - Regulatory and economic challenges
 - Geographical position between two ecologically sensitive national parks
 - Unique connectivity between the Biscayne Aquifer and the surrounding water resources
 - Requires a significantly higher level of treatment (Outstanding Florida Waters – Antidegradation Standards, etc.)
- *WASD Aquifer Recharge Project Piloting*
 - Economic and environmental impact of aquifer recharge is much greater than that of other available water supplies



WATER SUPPLY INVESTMENTS IN CONTEXT

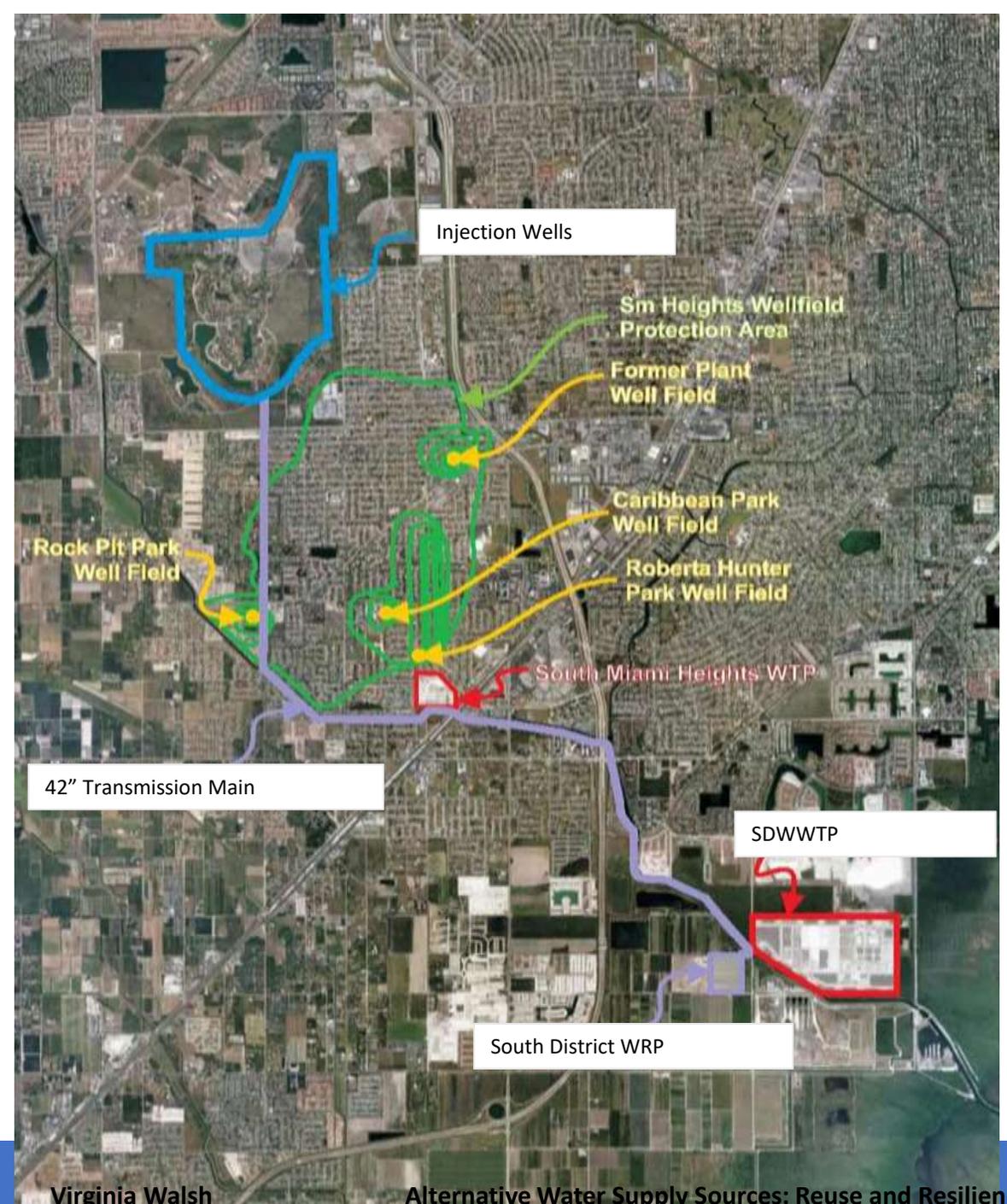
Water Supply Alternatives
Cost Comparison
(Millions of Dollars – 15 MGD)



South District Water Reclamation Project— Groundwater Replenishment

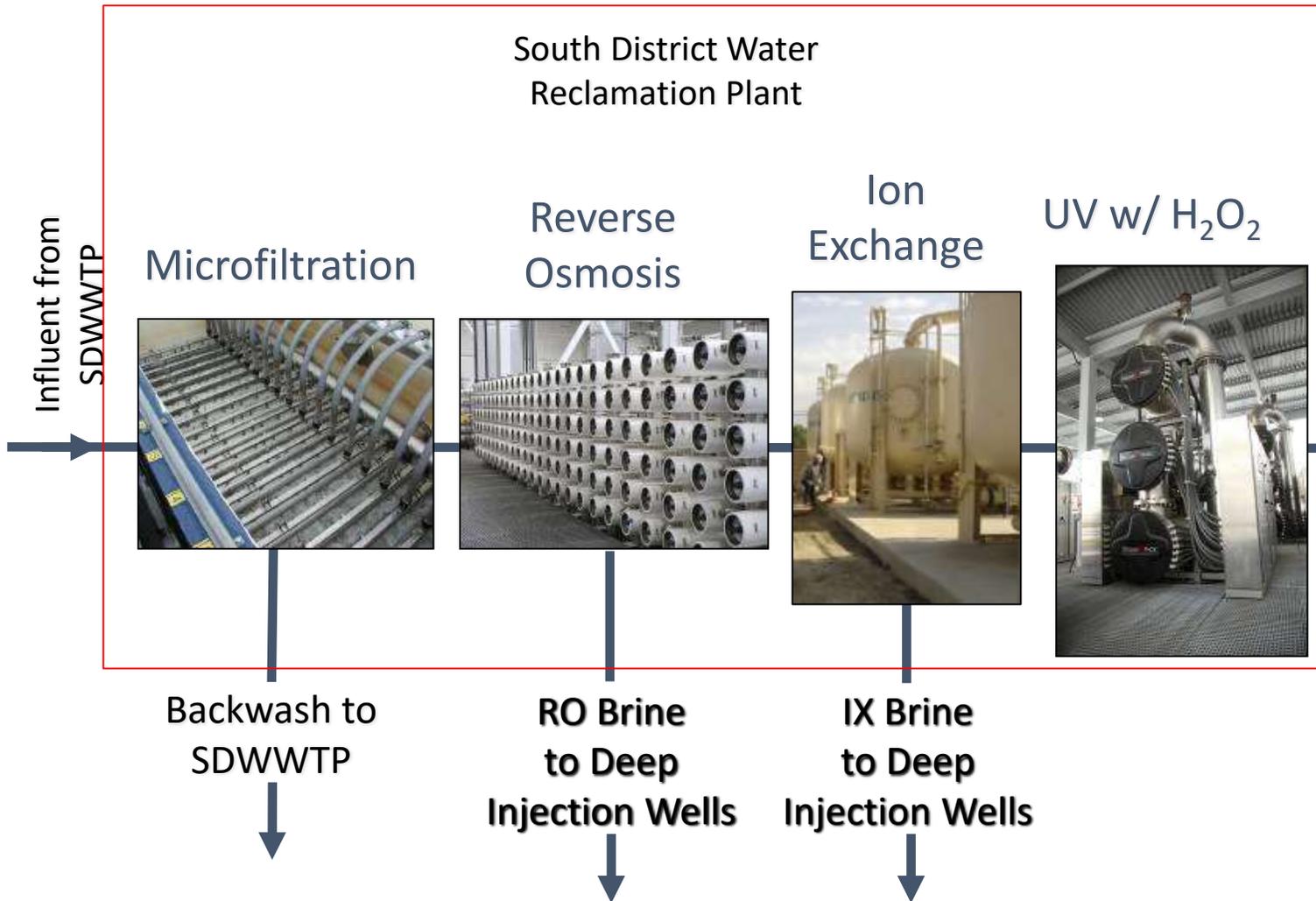
Project Facilities

Source of Aerial:
Google Earth Pro



Selected SDWRP Treatment Processes

Summary of South Dade Water Reclamation Project



Recharge Facilities at Metro Zoo

Parameter	Units	SDWWTP Average Effluent	Anticipated Limit Annual Average	Anticipated Limit Single Sample
CBOD ₅	mg/L	4.88	--	20
TOC	mg/L	11.7	3 (Monthly)	5
TSS	mg/L	9	--	5
Total Nitrogen	mg/L	24.3	10	--
Nitrate	mg/L	0.27	--	10
Nitrite	mg/L	0.49	--	1.0
Ammonia	mg/L	20.8	--	0.5
T. Phosphorus	mg/L	2.01	0.02	0.01

South District Water Reclamation Plant Cost Estimate

Project stopped at 90% design in 2011

2011:

- Total Estimated Capital Cost (including design, construction, construction management, overhead, etc) = **\$350 million**
- Total Estimated Annual Operation and Maintenance Cost = \$18 million

2020:

\$413 million

Using U.S. Bureau of Labor CPI 1.18

Goal was 20 ug/L

**Required 10 ug/L to meet Water Quality standards for Bay
Based on pilot tests 10 ug/L was achievable**



FPL®

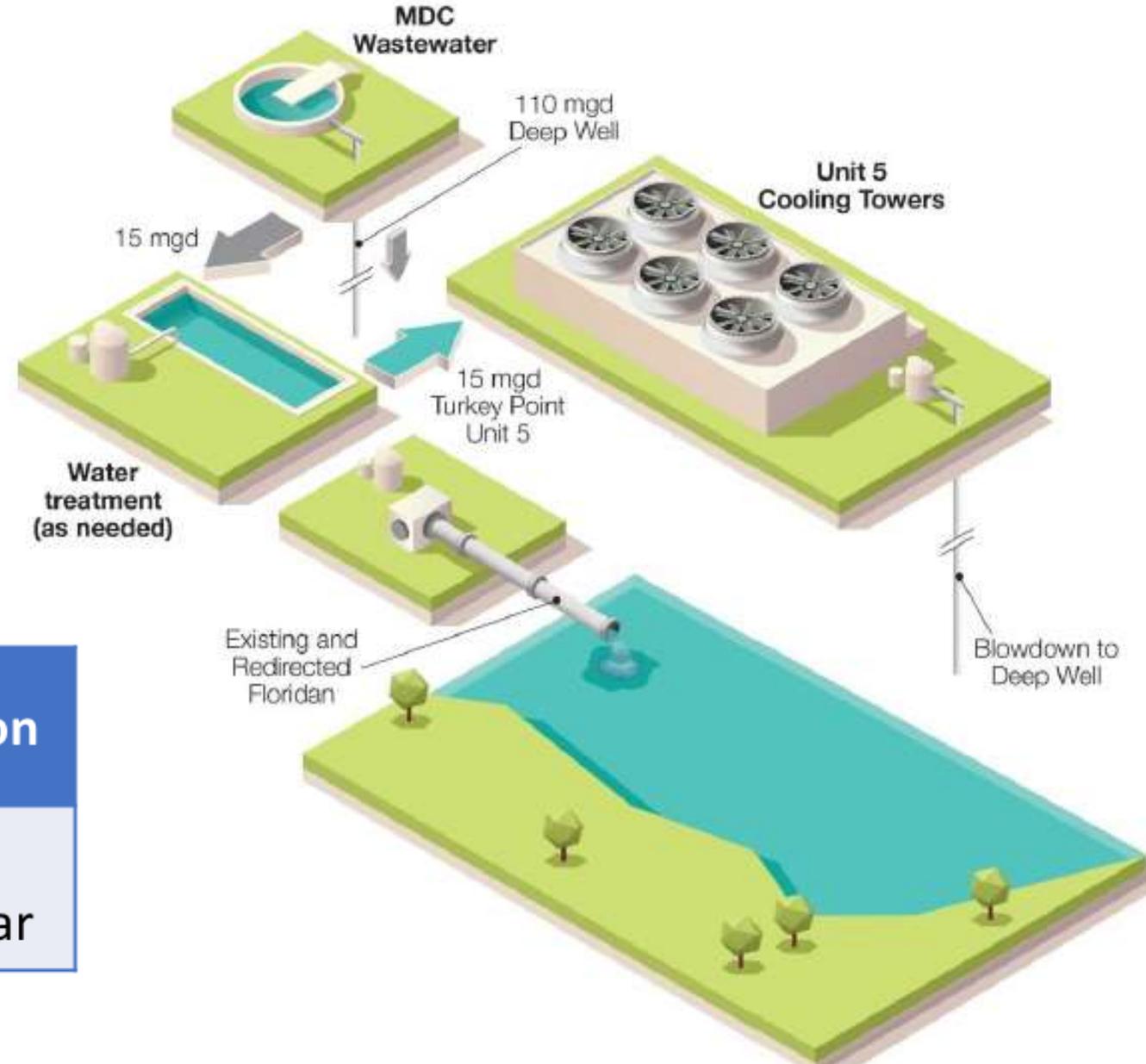
Clean Water Recovery Center



15 mgd of WASD treated wastewater

Water treatment cleans the water for reuse and handles waste streams to meet environmental goals

Capital Cost FPL	\$300 Million
O&M Cost WASD	\$6.5 Million/year



BBSEER is starting with the six CERP components below.

This list will be subjected to screening and analysis during the study:

- Biscayne Bay Coastal Wetlands (OPE)
- Biscayne Bay Coastal Canals (FFF)
- C-111N Canal Project (WW)

- South Miami Dade County Reuse (BBB)

- West Miami Dade Reuse (HHH)

- North Lake Belt (XX)

CENTRAL AND SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES
RESTORATION PLAN



COMPREHENSIVE EVERGLADES
RESTORATION PLAN

PROJECT MANAGEMENT PLAN

Biscayne Bay and Southeastern Everglades
Ecosystem Restoration



U.S. Army Corps of Engineers
Jacksonville District



South Florida Water
Management District



Additional pipeline capacity for future expansion will be built into the project (+45 mgd)

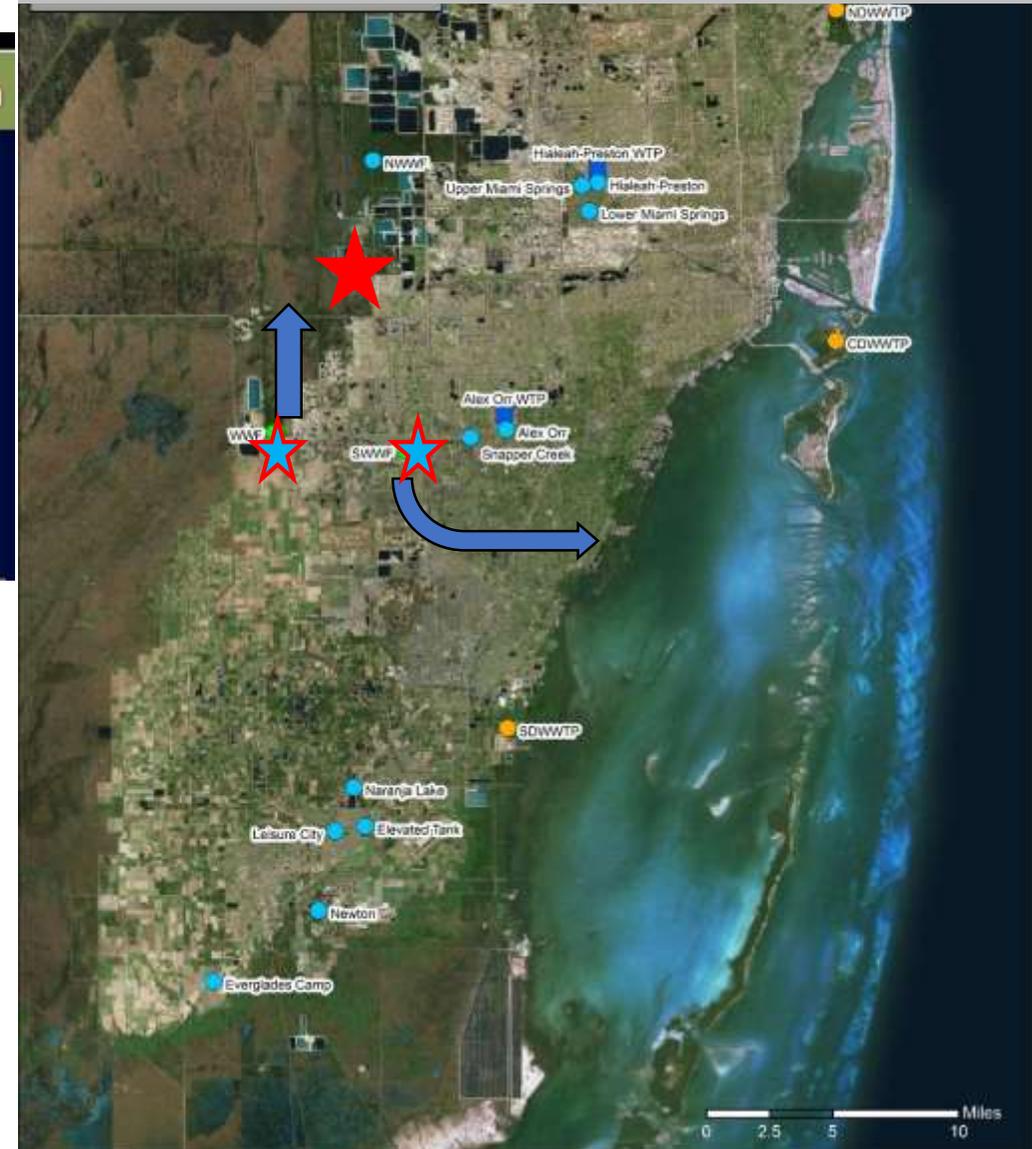
Based on current flows to SDWWTP there are approximately **85 MGD** unallocated that could be utilized for reuse

- FPL is in design phase for the 2nd pipeline to South Dade.
- Should the County determine to expand reuse to South Dade (according to the schedule would be Fall 2021 for determination), FPL will permit and construct the 2nd pipeline
- County would need to determine and provide funding for 2nd Pipeline
- FPL and County would need to reach agreement on FPL reimbursement of costs and schedule of payments prior to Fall 2021
- 2nd pipeline would then be used for environmental water down south.
- Water Quality treatment separate and potentially stand alone facility at a yet to be determined location.

West Miami Dade Reuse



West District Wastewater Treatment Plant
Scheduled: Post 2035 Construction start

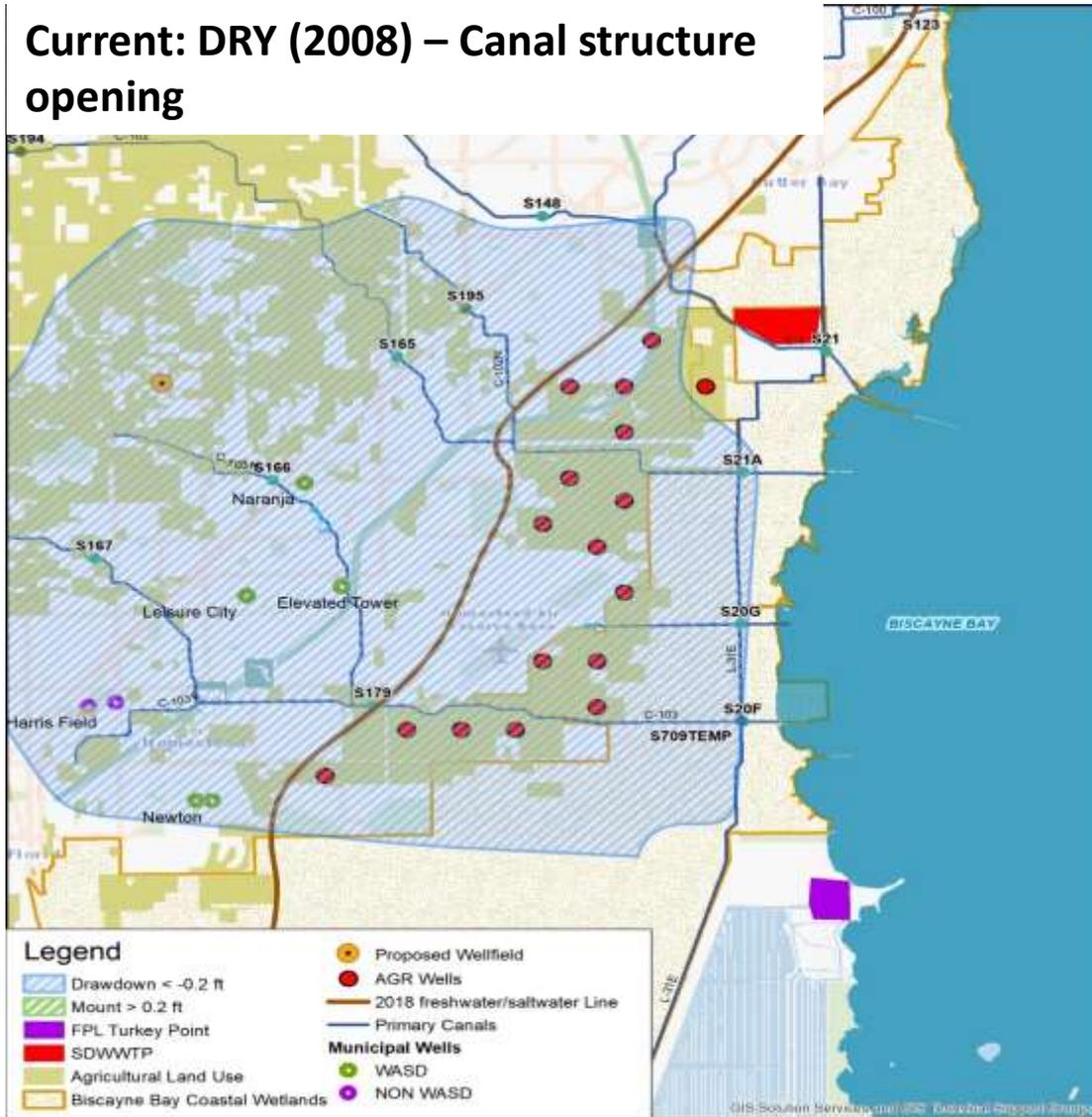


- WASD flows are currently below 300 MGD with a permitted capacity through our three (3) existing plants of 394 MGD.
- The West District Plant is planned, but will not be constructed until required (post 2035)

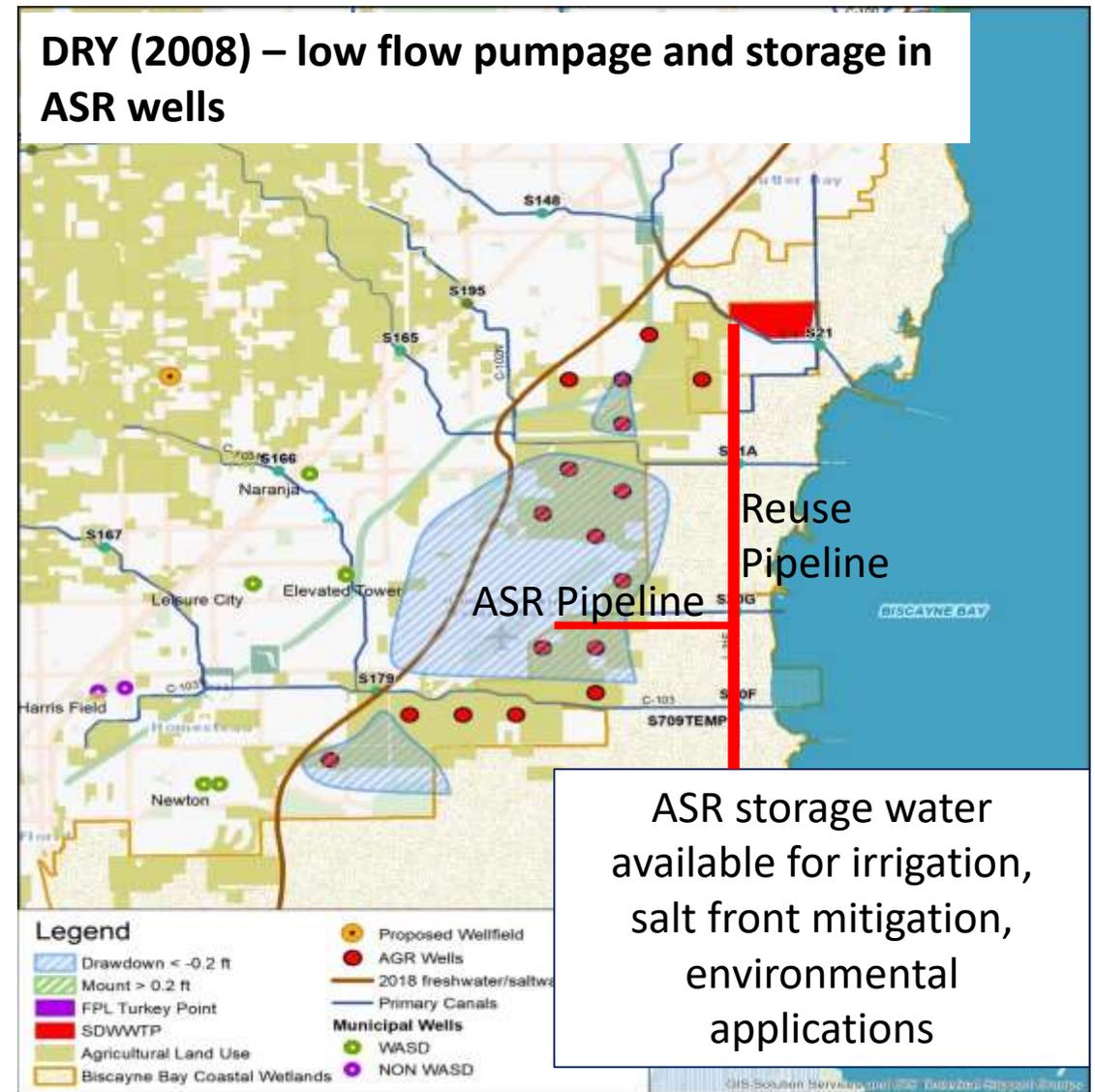
Integrating ASR into Reuse Multiple Stakeholder Solutions

Example South Dade Agricultural Drawdown

Current: DRY (2008) – Canal structure opening



DRY (2008) – low flow pumpage and storage in ASR wells



QUESTIONS?

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Miami Dade Water and Sewer Department

